

Overview

MGP16X is a hybrid mixer matching professional analog mixing engine with superior digital functions.



Rear Panel

Features

- Input channels: 16 Line Inputs (8 mono, 4 stereo), 10 Mic Inputs with 48V phantom power and HPH per channel.
- Output channels: 1 ST out, 1 Monitor out, 2 AUX sends, 4 Group out, 1 Phones out, 8 Mono CH insert out, 1 Rec out.
- Buses: 1 Stereo bus, 4 Group buses, 2 AUX sends+ 2FX sends.
- Robust, impact-resistant, powder-coated metal chassis.
- Internal universal power supply for worry-free operation around the globe, even in unsteady voltage environment.
- Discrete class A “D-PRE” mic preamps with an inverted darlington circuit.
- “X-pressive EQ” based on Yamaha’s VCM (Virtual Circuit Modeling) technology.
- Professional “1-knob compressors” with LED indicators.
- Dual digital effects processors: advanced “REV-X” reverb and 16 “SPX” effects
- Stereo Hybrid Channel with DSP offers following unique functions:
 - + “Priority Ducker” allows a microphone to take priority over another sound source automatically.
 - + “Leveler” to adjust volume levels of different tracks automatically.
 - + “Stereo Image” to optimize the pan balance to MONO/BLEND, useful for installed sound.
- Digital connectivity for iPhone/iPod with a dedicated terminal.
 - + “MGP Editor” App for detailed control of the console’s DSP settings with iPhone/iPod.
 - + High quality digital playback from iPhone/iPod.

Specifications

1/3

General Specifications

INPUT CHANNELS	LINE INPUT	16 (8 MONO + 4 STEREO)
	MIC INPUT	10
	MONO INPUT (MIC/LINE)	8 (CH1-8)
	STEREO INPUT (LINE)	4 (CH9-12)
	MONO CH INSERT INPUT	8
	STEREO CH INSERT INPUT	-
	RETURN	1 STEREO
	2TR IN	1 STEREO
	TALKBACK IN	-
OUTPUT CHANNELS	STEREO OUT	1
	MONO OUT	-
	MONITOR OUT [L, R]	1
	AUX SEND	2
	GROUP OUT	4
	PHONES OUT	1
	MATRIX OUT	-
	STEREO CH INSERT OUT [L, R]	-
	MONO CH INSERT OUT	8
REC OUT [L, R]	1	
BUS	STEREO	1
	GROUP	4
	AUX	2 AUX Sends + 2 FX Sends
USB AUDIO - USB IN/OUT		iPod, iPhone exclusive
PHANTOM POWER		+48V per channel
POWER REQUIREMENTS		100-240V 50Hz/60Hz
POWER SUPPLY TYPE		Internal Universal Power Supply
POWER CONSUMPTION		55W max
DIMENSIONS	W x D x H	495mm x 447mm x 143mm (19.5" x 17.6" x 5.6")
NET WEIGHT		9.0kg (19.8lbs)
INCLUDED ACCESSORIES		AC Power Code, Owner's manual
SOFTWARE APPLICATION	MGP EDITOR	Yes (Download on the App Store)
OPTIONAL ACCESSORIES		-
OPERATING TEMPERATURE		0 to 40°C

Specifications

2/3

Featured Functions

D-PRE MIC PREAMP	Yes
XPRESSIVE EQ	Yes
1-KNOB COMP	Yes
REV-X	Yes (8 programs. HALL / WARM HALL / BRIGHT HALL / PLATE 1 / PLATE 2 / ROOM / WARM ROOM / SLAP ROOM)
SPX	Yes (16 programs. HALL / ROOM / PLATE / LARGE PLATE / SMALL STAGE / VOCAL ECHO / KARAOKE ECHO / DELAY / SINGLE DELAY / EARLY REF. / CHORUS / PHASER / FLANGER / SYMPHONIC / DOUBLER / RADIO VOICE)
PRIORITY DUCKER	Yes (CH 13/14, 15/16. Ducker Source: CH8)
LEVELER	Yes (CH13/14, 15/16)
STEREO IMAGE	Yes (CH13/14, 15/16)
MGP EDITOR	Yes (Available on the App Store)
GRAPHIC EQ	No
MULTI-BAND COMPRESSOR	No
USB REC/PLAY (WAV)	No
USB REC/PLAY (MP3)	No

Electrical Specifications

TOTAL HARMONIC DISTORTION	20Hz-20kHz@ +14dBu	0.02%
FREQUENCY RESPONSE		+0.5/-1.0dB 20Hz - 20kHz, refer to the nominal output level @1kHz
HUM & NOISE LEVEL	Equivalent input noise	-128 dBu (20Hz~20 kHz, Rs=150Ω, Input Gain = Maximum)
	Residual output noise	-102 dBu (20Hz~20 kHz, Rs=150Ω, Input Gain = Maximum)
CROSSTALK	@ 1kHz	-74dB
INPUT HPF		MIC INPUT (100Hz 12dB/oct)
COMPRESSOR		CH1-8: control x 1 (Gain/Threshold/Ratio)
INPUT CHANNEL EQ	High	±15dB (8kHz shelving)
	Mid	±15dB (250Hz~5kHz peaking: CH1-8,13-16) ±15dB (2.5kHz peaking: CH9-12)
	Low	±15dB (125Hz shelving)
INTERNAL DIGITAL EFFECT	FX1: REV-X	8 PROGRAM, PARAMETER control
	FX2: SPX	16 PROGRAM, PARAMETER control
LED LEVEL METER PRE MONITOR LEVEL		2 x 12 points LED meter (PEAK, +10, +6, +3, 0, -3, -6, -10, -15, -20, -25, -30dB) PEAK lights if the signal comes within 3dB of the clipping level.
SIGNAL INDICATOR		PEAK indicator (red), SIG indicator (green) Peak lights if the signal comes within 3dB of the clipping level.

Specifications

3/3

Analog Input Characteristics

INPUT TERMINAL	PAD [26dB]	GAIN	ACTUAL LOAD IMPEDANCE	FOR USE WITH NOMINAL	INPUT LEVEL			CONNECTOR
					Sensitivity*1	Nominal	Max. before clip	
MONO CH IN 1 – 8	OFF	-60 dB	3kΩ	50-600Ω Mics	-80 dBu (0.078 mV)	-60 dBu (0.775 mV)	-40 dBu (7.75 mV)	Combo jack*2
		-16 dB			-36 dBu (12.3 mV)	-16 dBu (123 mV)	+4 dBu (1.23 V)	
	ON	-34 dB		600Ω Lines	-54 dBu (1.55 mV)	-34 dBu (15.5 mV)	-14 dBu (155 mV)	
		+10 dB			-10 dBu (245 mV)	+10 dBu (2.45 V)	+30 dBu (24.5 V)	
STEREO CH IN 9 – 12		-60 dB	3kΩ	50-600Ω Mics	-80 dBu (0.078 mV)	-60 dBu (0.775 mV)	-40 dBu (7.75 mV)	XLR-3-31*3
		-16 dB			-36 dBu (12.3 mV)	-16 dBu (123 mV)	-6 dBu (389 mV)	
		-34 dB	10kΩ	600Ω Lines	-54 dBu (1.55 mV)	-34 dBu (15.5 mV)	-14 dBu (155 mV)	Phone jack*4
		+10 dB			-10 dBu (245 mV)	+10 dBu (2.45 V)	+30 dBu (24.5 V)	
STEREO CH IN 13 – 16		-34 dB	10kΩ	600Ω Lines	-54 dBu (1.55 mV)	-34 dBu (15.5 mV)	-14 dBu (155 mV)	Phone jack*4 RCA Pin jack
		+10 dB			-10 dBu (245 mV)	+10 dBu (2.45 V)	+30 dBu (24.5 V)	
MONO CH INSERT IN (1-8)			10kΩ	600Ω Lines	-20 dBu (7.75 mV)	0 dBu (0.775 V)	+20 dBu (7.75 V)	TRS Phone jack*5
RETURN [L, R]			10kΩ	600Ω Lines	-12 dBu (195 mV)	+4 dBu (1.23 V)	+24 dBu (12.3 V)	Phone jack*4
2TR IN [L, R]			10kΩ	600Ω Lines	-26 dBu (50.1 mV)	-10 dBu (0.316 V)	+10 dBu (3.16 V)	RCA Pin jack

0 dBu is referenced to 0.775 Vrms. 0 dBV is referenced to 1 Vrms.

*1 Sensitivity is the lowest level that will produce an output of +4 dB (1.23 V), or the nominal output level when the unit is set to maximum level. (all faders and level controls are at maximum position.)

*2 Combo jacks are balanced. (1&Sleeve=GND, 2&Tip=HOT, 3&Ring=COLD)

*3 XLR-3-31 type connectors are balanced. (1=GND, 2=HOT, 3=COLD)

*4 Phone Jacks are unbalanced.

*5 Phone Jacks are unbalanced. (Tip=Out, Ring=In, Sleeve=GND)

Analog Output Characteristics

OUTPUT TERMINALS	ACTUAL SOURCE IMPEDANCE	FOR USE WITH NOMINAL	OUTPUT LEVEL		CONNECTOR
			Nominal	Max. before clip	
STEREO OUT [L, R]	75Ω	600Ω Lines	+4 dBu (1.23 V)	+24 dBu (12.3 V)	XLR-3-32*1 Phone jack*4
GROUP OUT (1-4)	150Ω	10kΩ Lines	+4 dBu (1.23 V)	+20 dBu (7.75 V)	Phone jack*2
AUX SEND (1, 2)	75Ω	600Ω Lines	+4 dBu (1.23 V)	+24 dBu (12.3 V)	XLR-3-32*1
FX SEND (1, 2)	150Ω	10kΩ Lines	+4 dBu (1.23 V)	+24 dBu (12.3 V)	Phone jack*2
MONO CH INSERT OUT (1-8)	150Ω	10kΩ Lines	0 dBu (0.775 V)	+20 dBu (7.75 V)	Phone jack*3
REC OUT [L, R]	600Ω	10kΩ Lines	-10 dBu (0.316 V)	+10 dBu (3.16 V)	RCA Pin jack
MONITOR OUT [L, R]	150Ω	10kΩ Lines	+4 dBu (1.23 V)	+20 dBu (7.75 V)	Phone jack*2
PHONES OUT	100Ω	40Ω Phones	3mW	75mW	Stereo phone jack

0 dBu is referenced to 0.775 Vrms. 0 dBV is referenced to 1 Vrms.

*1 XLR-3-32 type connectors are balanced. (1=GND, 2=HOT, 3=COLD)

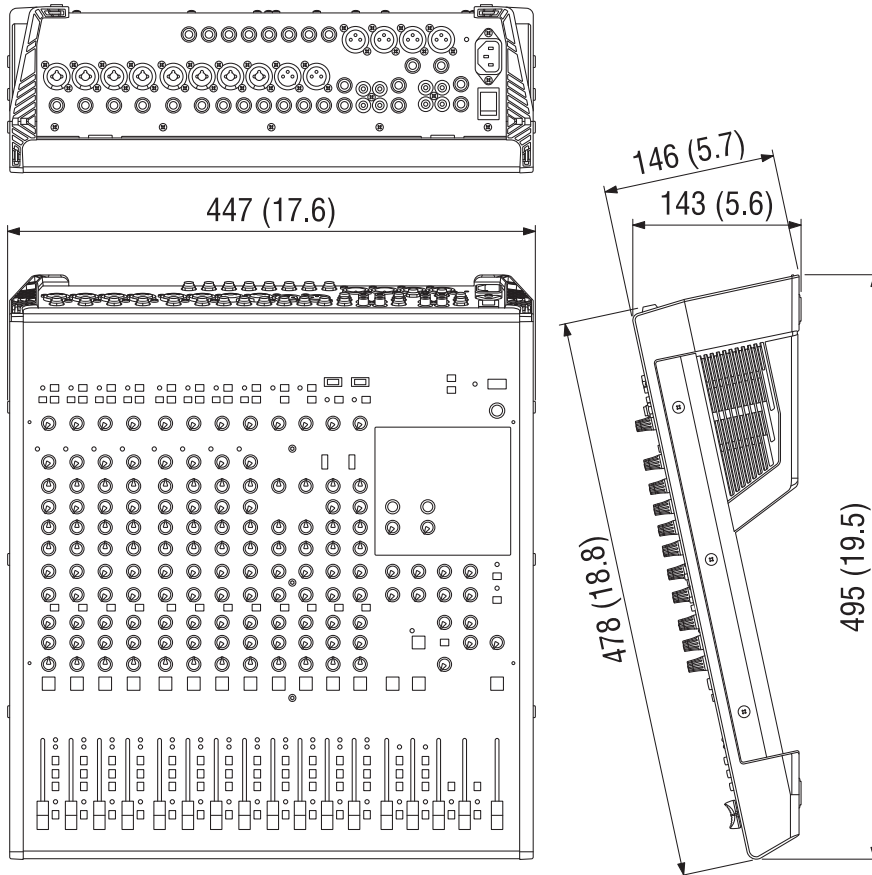
*2 Phone jacks are impedance balanced. (Tip=HOT, Ring=COLD, Sleeve=GND)

*3 Phone jacks are unbalanced. (Tip=Out, Ring=In, Sleeve=GND)

*4 Phone jacks are balanced. (Tip=HOT, Ring=COLD, Sleeve=GND)

Dimensions

Unit: mm (inch)



Software

- MGP Editor

Architectural and Engineering Specifications

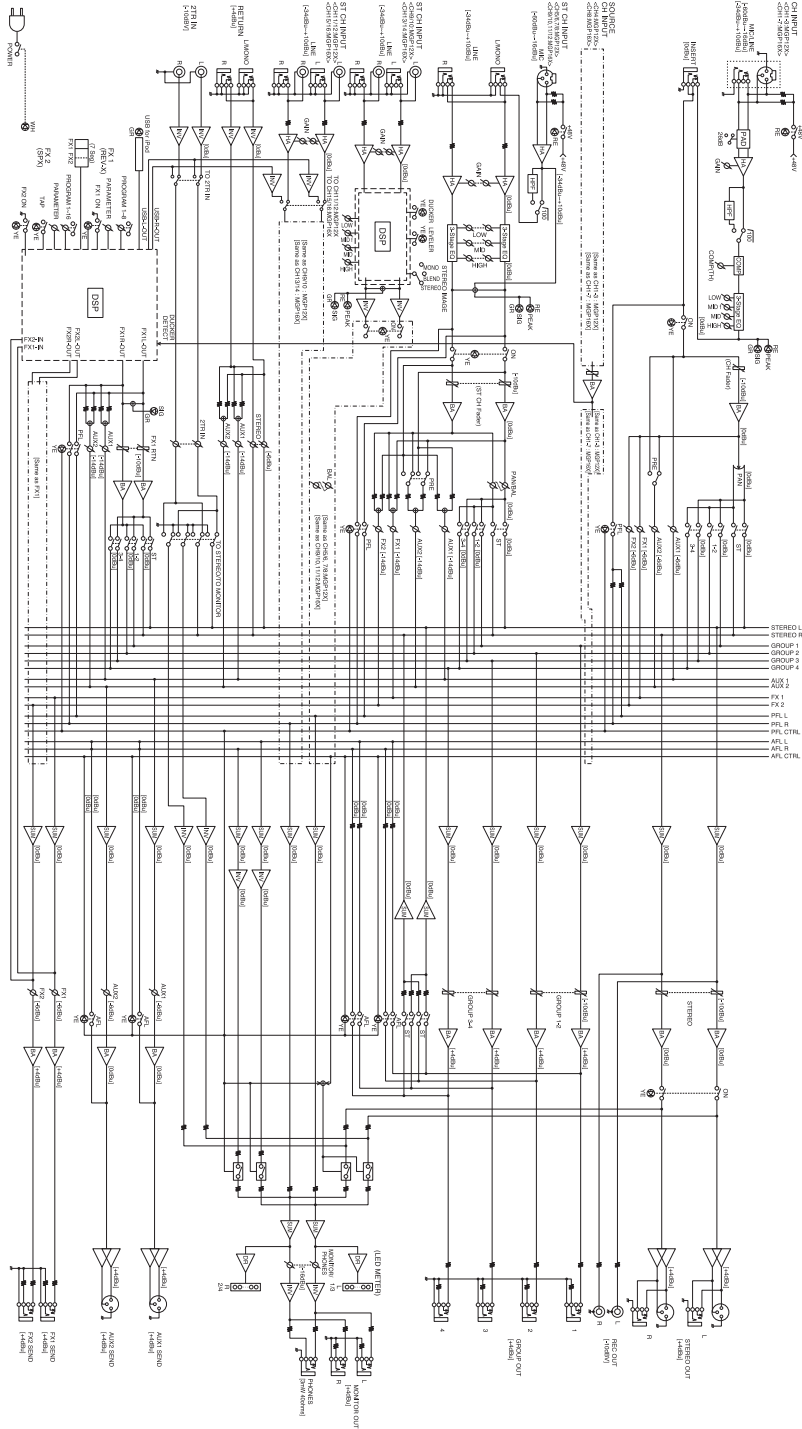
The Yamaha MGP16X Mixing Console shall be a hybrid mixer that combines analog mixing with digital functionality. The MGP16X shall have 12 line inputs (8 mono and 4 stereo), and 10 microphone inputs with 48V phantom power and a high-pass filter for each. Output channels shall be 1 stereo output, 1 mono output, 1 monitor output, 2 auxiliary sends, 4 group outputs, 8 mono channel insert outputs and 1 Rec output. Buses are 4 group buses, 2 auxiliary sends + 2 FX sends and a stereo bus.

The mixer's microphone preamplifiers shall be discrete class-A Yamaha "D-PRE" types for high sound quality. "X-pressive EQ" based on original Yamaha VCM (Virtual Circuit Modeling) technology shall be included for warm, musical equalization. Yamaha "1-Knob Compressors" with LED indicators shall provide high-quality compression that is also easy to use. The mixer shall be equipped with dual digital effects processors that include "REV-X" reverb and 16 "SPX" effects. A Stereo Hybrid Channel with built-in digital signal processing shall provide the following functions: (a) "Priority Ducker" shall automatically reduce the level of background music when a speech or announcement begins, (b) "Leveler" shall maintain a constant level by automatically adjusting the volume of individual tracks, and (c) "Stereo Image" shall allow modification of the stereo image to provide optimum balance for listeners at any position in an installed sound environment.

Digital input connectors shall enable high quality digital playback from digital devices such as an iPhone or iPod. An "MGP Editor" app that runs on an iPhone or iPod shall be provided to allow detailed control of the mixer's digital signal processing functions. Other features shall include WAV/MP3 recording and playback to and from a USB memory device, graphic equalization with selectable 9-band Flex EQ and fixed 14-band modes, and a multi-band compressor.

The mixer shall be built into a durable impact-resistant, powder-coated metal chassis. An internal universal power supply shall provide stable, trouble free operation with AC power anywhere in the world. Dimensions shall be 447 (W) x 495 (D) x 143 (H) mm. Weight shall be 9 kg.

Block Diagrams



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